

# DEN 108: DENTAL RADIOGRAPHY

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## History

1. Dec 3, 2025 by Sera Bird (sabird)

**Viewing: DEN 108 : Dental Radiography**

**Last approved: 2025-12-03T08:03:49Z**

**Last edit: 2025-11-25T18:09:54Z**

**Effective Term**

Winter 2026

## Rationale and proposal summary

Update objective language and other areas of syllabus to align with current instruction.

## Course Cover

### Full Course Title

Dental Radiography

### Transcript Title

Dental Radiography

### Subject Code

DEN - Dental Assisting

### Course Number

108

### Department

Allied Health Department (ALHD)

### Banner Division

HLT

### Division/College

Health Sciences (HL)

### Org Code

15100

## Course Description

In this course, students are introduced to concepts of radiography as they are applied to dentistry. Principles of radiation physics, health and safety factors, and quality control measures are examined. Students then use this knowledge to expose dental images and then evaluate to determine if the image is diagnostically acceptable. The content of this course, when combined with DEN 128, satisfies the Administrative Rules of the Michigan Board of Dentistry educational requirements.

## Planned Delivery Format

Face to Face

## Has this course been approved for online or online blended?

Yes

## Grading method

Standard Letter, Audit

## CIP Code

519999 - Health Professions and Related Clinical Sciences, Other.

## Occupational Indicator

Yes

**ACS Code**

140

**Credit hours, contact hours, repeatability**

**Repeatable for additional credit**

No

**Course credits**

0 or 2

**Lecture contact hours**

0 or 15

**Lab contact hours**

0 or 30

**Total Contact Hours**

15 to 45

**Expected Total Contact Hours**

0-45

**Prerequisites and prerequisite skill levels**

**College-Level Math**

No Level Required

**College-Level Reading and Writing**

College-level Reading and Writing

**Approved Level I Prerequisite:**

Academic Reading and Writing Levels of 6; Admission to Dental Assisting program; DEN 102 minimum grade "C", may enroll concurrently; DEN 107, may enroll concurrently

**Is concurrent enrollment an option for this prerequisite?**

Yes

**Which courses?**

DEN 102; DEN 107

**Course Assessment Plan**

**Learning Outcome**

**Outcome**

Recognize concepts and principles related to radiation physics, health and safety factors, and quality control of radiographic images.

**Assessment #1**

**Assessment Tool**

Outcome-related final exam questions

**Anticipated Next Assessment Year**

2028

**Anticipated Next Assessment Term**

Winter

**Assessment Cycle**

Every Three Years

**Anticipated assessment population**

All students from all sections

**How the assessment will be scored**

Answer key

**Who does the scoring?**

Departmental faculty

**Standard of success**

80% of the students will score 80% or higher on the outcome-related questions

**Assessment #2**

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**Learning Outcome****Outcome**

Evaluate student produced dental images on a manikin for diagnostic purposes and troubleshooting.

**Assessment #1****Assessment Tool**

Performance evaluation

**Anticipated Next Assessment Year**

2028

**Anticipated Next Assessment Term**

Winter

**Assessment Cycle**

Every Three Years

**Anticipated assessment population**

All students from all sections

**How the assessment will be scored**

Departmentally-developed rubric

**Who does the scoring?**

Departmental faculty

**Standard of success**

Students will score 85% or higher.

**Assessment #2**

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**Learning Outcome****Outcome**

Demonstrate infection prevention and safety principles while preparing for patient exposure.

**Assessment #1****Assessment Tool**

Performance validation

**Anticipated Next Assessment Year**

2028

**Anticipated Next Assessment Term**

Winter

**Assessment Cycle**

Every Three Years

**Anticipated assessment population**

All students from all sections

**How the assessment will be scored**

Departmentally-developed rubric

**Who does the scoring?**

Departmental faculty

**Standard of success**

Students will score 85% or higher on their first attempt.

**Assessment #2****Course Objectives**

Objective(s)	
1.	Identify key terms associated with dental radiography.
2.	Identify types of radiation.
3.	Identify biological effects and hazards of ionizing radiation.
4.	Identify measuring units, detection and monitoring devices, and precautions and safety measures for ionizing radiation.
5.	Identify parts of a dental x-ray machine and digital radiographic equipment.
6.	Identify the composition and function of image receptors.
7.	Identify factors involved in image receptor exposure.
8.	Identify and understand the types and uses of periapical, bitewing, occlusal, cephalometric, and panoramic images.
9.	Identify care/maintenance procedures for phosphor plate scanners and digital receptors.
10.	Demonstrate scanning phosphor plates using a scanner.
11.	Identify common anatomic landmarks in dental radiographs.
12.	Mount multiple complete series of radiographs for viewing.
13.	Identify common processing and exposure errors, and corrections for exposed images.
14.	Apply all OSHA regulations and CDC guidelines with regards to infection prevention as well as clinic rules with regards to radiation safety.
15.	Assemble image receptor holders for patient use given a variety of scenarios.
16.	Demonstrate placement techniques, using a variety of image receptor holding devices, on a classmate without exposure.
17.	Expose and evaluate dental images for diagnostic value using phosphor plates and digital sensors on a DXTRR manikin implementing paralleling and bitewing techniques.
18.	Demonstrate the ability to work as a team player and manage time effectively.

**General Education Area(s)****Area 1: Writing**

No

**Area 2: 2nd Writing or Communication/Speech**

No

**Area 3: Mathematics**

No

**Area 4: Natural Science**

No

**Area 5: Social and Behavioral Science**

No

**Area 6: Arts and Humanities**

No

**MTA General Education**

No

**Review**

**Is conditional approval requested?**

No

**Is this course currently conditionally approved, and you are now submitting it for full approval?**

No

Key: 4467

## Washtenaw Community College Comprehensive Report

### DEN 108 Dental Radiography Effective Term: Spring/Summer 2022

#### Course Cover

**College:** Health Sciences

**Division:** Health Sciences

**Department:** Allied Health

**Discipline:** Dental Assisting

**Course Number:** 108

**Org Number:** 15100

**Full Course Title:** Dental Radiography

**Transcript Title:** Dental Radiography

**Is Consultation with other department(s) required:** No

**Publish in the Following:** College Catalog , Time Schedule , Web Page

**Reason for Submission:** Three Year Review / Assessment Report

**Change Information:**

**Objectives/Evaluation**

**Rationale:** Update objectives to better reflect course assignments.

**Proposed Start Semester:** Fall 2022

**Course Description:** In this course, students are introduced to concepts of radiography as they are applied to dentistry. Principles of radiation physics, health and safety factors, and quality control measures are examined. Students then use this knowledge to expose radiographic images in which they must then evaluate to determine if the image is diagnostically acceptable. The content of this course, when combined with DEN 128, satisfies the Administrative Rules of the Michigan Board of Dentistry educational requirements.

#### Course Credit Hours

**Variable hours:** Yes

**Credits:** 0 – 2

**Lecture Hours: Instructor:** 15 **Student:** 15

**Lab: Instructor:** 30 **Student:** 30

**Clinical: Instructor:** 0 **Student:** 0

**Total Contact Hours: Instructor:** 0 to 45 **Student:** 0 to 45

**Repeatable for Credit:** NO

**Grading Methods:** Letter Grades

Audit

**Are lectures, labs, or clinicals offered as separate sections?:** YES (separate sections)

#### College-Level Reading and Writing

College-level Reading & Writing

#### College-Level Math

No Level Required

#### Requisites

**Prerequisite**

Admission to Dental Assisting program

and

**Prerequisite**

DEN 102 minimum grade "C"; may enroll concurrently

**General Education****Request Course Transfer**

**Proposed For:**

**Student Learning Outcomes**

1. Recognize concepts and principles related to: radiation physics, health and safety factors, and quality control of radiographic images.

**Assessment 1**

Assessment Tool: Outcome-related final exam questions

Assessment Date: Winter 2023

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Answer key

Standard of success to be used for this assessment: 80% of the students will score 80% or higher on the outcome-related questions

Who will score and analyze the data: Departmental faculty

2. Evaluate student produced dental radiographs on a manikin for diagnostic purposes and troubleshooting.

**Assessment 1**

Assessment Tool: Performance evaluation

Assessment Date: Winter 2023

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Departmentally-developed rubric

Standard of success to be used for this assessment: 85% or more of students will score 85% or higher

Who will score and analyze the data: Departmental faculty

3. Demonstrate infection prevention and safety principles while preparing for patient exposure.

**Assessment 1**

Assessment Tool: Performance validation

Assessment Date: Winter 2023

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Departmentally-developed rubric

Standard of success to be used for this assessment: 85% or more of students will score 85% or higher on their first attempt.

Who will score and analyze the data: Departmental faculty

**Course Objectives**

1. Identify key terms associated with dental radiography.
2. Identify types of radiation.
3. Identify biological effects and hazards of ionizing radiation.
4. Identify measuring units, detection and monitoring devices, and precautions and safety measures for ionizing radiation.

5. Identify parts of a dental x-ray machine, and digital radiographic equipment.
6. Identify the composition and function of image receptors.
7. Identify factors involved in image receptor exposure.
8. Identify and understand the types and use of periapical, bitewing, occlusal, cephalometric, and panoramic images.
9. Identify care/maintenance procedures for automatic film processors and phosphor plate scanners.
10. Describe how a latent image becomes a visible image in film processing.
11. Demonstrate scanning phosphor plates using a scanner.
12. Identify common anatomic landmarks in dental radiographs.
13. Mount multiple complete series of radiographs for viewing.
14. Identify common processing and exposure errors, and corrections for exposed images.
15. Apply all OSHA regulations and CDC guidelines with regards to infection prevention as well as clinic rules with regards to radiation safety.
16. Assemble image receptor holders for patient use given a variety of scenarios.
17. Demonstrate placement techniques, using a variety of image receptor holding devices, on a classmate without exposure.
18. Expose and evaluate radiographs for diagnostic value using phosphor plates and digital sensors on a DXTTR manikin implementing paralleling and bitewing techniques.
19. Demonstrate the ability to work as a team player and manage time effectively.

### **New Resources for Course**

#### **Course Textbooks/Resources**

##### Textbooks

Iannucci, J. Howerton, L.. *Dental Radiography Principles and Techniques*, 5th ed. Saunders, 2017

##### Manuals

##### Periodicals

##### Software

#### **Equipment/Facilities**

Level III classroom

Other: Dental Clinic

<b><u>Reviewer</u></b>	<b><u>Action</u></b>	<b><u>Date</u></b>
<b>Faculty Preparer:</b>		
<i>Kristina Sprague</i>	<i>Faculty Preparer</i>	<i>Sep 30, 2021</i>
<b>Department Chair/Area Director:</b>		
<i>Kristina Sprague</i>	<i>Recommend Approval</i>	<i>Sep 30, 2021</i>
<b>Dean:</b>		
<i>Eva Samulski</i>	<i>Recommend Approval</i>	<i>Oct 01, 2021</i>
<b>Curriculum Committee Chair:</b>		
<i>Randy Van Wagnen</i>	<i>Recommend Approval</i>	<i>Dec 01, 2021</i>
<b>Assessment Committee Chair:</b>		
<i>Shawn Deron</i>	<i>Recommend Approval</i>	<i>Dec 01, 2021</i>
<b>Vice President for Instruction:</b>		
<i>Kimberly Hurns</i>	<i>Approve</i>	<i>Dec 08, 2021</i>



## Washtenaw Community College Comprehensive Report

### DEN 108 Dental Radiography Effective Term: Winter 2018

#### Course Cover

**Division:** Health Sciences

**Department:** Allied Health

**Discipline:** Dental Assisting

**Course Number:** 108

**Org Number:** 15100

**Full Course Title:** Dental Radiography

**Transcript Title:** Dental Radiography

**Is Consultation with other department(s) required:** No

**Publish in the Following:** College Catalog , Time Schedule , Web Page

**Reason for Submission:** Three Year Review / Assessment Report

**Change Information:**

**Course description**

**Outcomes/Assessment**

**Objectives/Evaluation**

**Rationale:** Outcomes need to better reflect the assessment tool and objectives needed to be updated according to the use of current technology.

**Proposed Start Semester:** Winter 2018

**Course Description:** In this course, students are introduced to concepts of radiography as they are applied to dentistry. Principles of radiation physics, health and safety factors, and quality control measures are examined. Students then use this knowledge to expose radiographic images in which they must then evaluate to determine if the image is diagnostically acceptable. The content of this course, when combined with DEN 128, satisfies the Administrative Rules of the Michigan Board of Dentistry educational requirements.

#### Course Credit Hours

**Variable hours:** Yes

**Credits:** 0 – 2

**Lecture Hours: Instructor:** 15 **Student:** 15

**Lab: Instructor:** 30 **Student:** 30

**Clinical: Instructor:** 0 **Student:** 0

**Total Contact Hours: Instructor:** 0 to 45 **Student:** 0 to 45

**Repeatable for Credit:** NO

**Grading Methods:** Letter Grades

Audit

**Are lectures, labs, or clinicals offered as separate sections?:** YES (separate sections)

#### College-Level Reading and Writing

College-level Reading & Writing

## **College-Level Math**

### **Requisites**

#### **Prerequisite**

Admission to Dental Assisting program  
and

#### **Prerequisite**

DEN 102 minimum grade "C"; may enroll concurrently

### **General Education**

### **Request Course Transfer**

#### **Proposed For:**

### **Student Learning Outcomes**

1. Recognize concepts and principles related to: radiation physics, health and safety factors, and quality control of radiographic images.

#### **Assessment 1**

Assessment Tool: Final exam

Assessment Date: Winter 2020

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Final exam is scored against an answer key.

Standard of success to be used for this assessment: 80% or more of the students will correctly answer each item. Items with scores lower than 80% will be targeted for review. 80% of the students will score 80% overall.

Who will score and analyze the data: Faculty assigned to teach the course will analyze the data.

Written test responses are multiple choice and true/false which are scored through Blackboard.

An item analysis is generated from the scored data.

2. Evaluate student produced dental radiographs on a manikin for diagnostic purposes and troubleshooting.

#### **Assessment 1**

Assessment Tool: Performance evaluation

Assessment Date: Winter 2020

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Radiographic evaluations are rated with numerical scores based on a department rubric. Scores are added to obtain a total.

Standard of success to be used for this assessment: 85% or more of students will score 85% or higher.

Who will score and analyze the data: Faculty assigned to teach the course will analyze the data.

Performance evaluation data is numerical; total scores are used.

3. Demonstrate infection prevention and safety principles while preparing for patient exposure.

## **Assessment 1**

Assessment Tool: Performance validation

Assessment Date: Winter 2020

Assessment Cycle: Every Three Years

Course section(s)/other population: All

Number students to be assessed: All

How the assessment will be scored: Performance validations are rated with numerical scores based on a department rubric. Scores are added to obtain a total.

Standard of success to be used for this assessment: 85% or more of students will score 85% or higher on their first attempt.

Who will score and analyze the data: Faculty assigned to teach the course will analyze the data.

Performance validation data is numerical; total scores are used.

## **Course Objectives**

1. Identify key terms associated with dental radiography.
2. Identify types of radiation.
3. Identify biological effects and hazards of ionizing radiation.
4. Identify measuring units, detection and monitoring devices, and precautions and safety measures for ionizing radiation.
5. Identify parts of a dental x-ray machine, and digital radiographic equipment.
6. Identify the composition and function of image receptors.
7. Identify factors involved in image receptor exposure.
8. Identify and understand the types and use of periapical, bitewing, occlusal, cephalometric, and panoramic images.
9. Identify care/maintenance procedures for automatic film processors and phosphor plate scanners.
10. Identify the components of processing solutions.
11. Demonstrate processing/scanning using an automatic processor/scanner.
12. Identify common anatomic landmarks in dental radiographs.
13. Mount multiple complete series of radiographs for viewing.
14. Identify oral structures, restorations, and common pathological conditions in dental radiographs.
15. Identify common processing and exposure errors, and corrections for exposed images.
16. Apply all OSHA regulations and CDC guidelines with regards to infection prevention as well as clinic rules with regards to radiation safety.
17. Assemble image receptor holders for patient use given a variety of scenarios.
18. Demonstrate placement techniques, using a variety of image receptor holding devices, on a classmate without exposure.
19. Expose and evaluate radiographs for diagnostic value using film, phosphor plates and digital sensors on a DXTTR manikin implementing paralleling and bitewing techniques.
20. Demonstrate the ability to work as a team player and manage time effectively.

## **New Resources for Course**

### **Course Textbooks/Resources**

#### Textbooks

Iannucci, J. Howerton, L.. *Dental Radiography Principles and Techniques*, 5th ed. Saunders, 2017

#### Manuals

#### Periodicals

#### Software

**Equipment/Facilities**

Level III classroom

Other: Dental Clinic

<b><u>Reviewer</u></b>	<b><u>Action</u></b>	<b><u>Date</u></b>
<b>Faculty Preparer:</b> <i>Kristina Sprague</i>	<i>Faculty Preparer</i>	<i>Apr 27, 2017</i>
<b>Department Chair/Area Director:</b> <i>Connie Foster</i>	<i>Recommend Approval</i>	<i>May 09, 2017</i>
<b>Dean:</b> <i>Valerie Greaves</i>	<i>Recommend Approval</i>	<i>May 10, 2017</i>
<b>Curriculum Committee Chair:</b> <i>Lisa Veasey</i>	<i>Recommend Approval</i>	<i>Aug 31, 2017</i>
<b>Assessment Committee Chair:</b> <i>Michelle Garey</i>	<i>Recommend Approval</i>	<i>Sep 06, 2017</i>
<b>Vice President for Instruction:</b> <i>Kimberly Hurns</i>	<i>Approve</i>	<i>Sep 07, 2017</i>